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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,588	12/04/2001	Hiroyuki Miura	2224-0194P	6379

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EXAMINER

ANDERSON, REBECCA L

ART UNIT PAPER NUMBER

1626

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/980,588

Applicant(s)

MIURA ET AL.

Examiner

Rebecca L. Anderson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 18 and 38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 18 and 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 1-3, 18 and 38 are currently pending in the instant application and are rejected.

#### ***Response to Arguments***

Applicant's arguments filed 12/8/05 have been fully considered but they are not persuasive. In regards to the objection to the specification, applicant argues that the specification pages 23 lines 23-page 25 line 13 provides support for changing the paragraph bridging pages 48-49 of the specification as pages 23-25 provide support for C4-C16cycloalkane as a substrate. However, this argument is not persuasive as the paragraph bridging pages 48 and 49 stated that a low or weak polar compound as a reaction product is such as C4-C16 cycloalkane. It is not apparent to one of ordinary skill in the art that there is an error, and even if it was apparent that there is an error, it is not apparent what the appropriate correction would be to the example of a low or weak polar compound as a reaction product with preferred solvents as hydrocarbon and a chain ether as there are many reaction products encompassed by applicants originally filed disclosure.

In regards to the 35 USC 112 1<sup>st</sup> paragraph rejection of claims 1-3 and 18, applicant argues that pages 48-49 provide support for the amendment to the claims that when the hydrocarbon or the chain ether is employed as the solvent, the reaction mixture is obtained by an oxidation reaction of a monocyclic C4-C16 cycloalkane substrate. However, this amendment, which is considered new matter, is limiting the solvent to water when the reaction mixture is obtained by (ii)-(vi) or the substrate is

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other than a monocyclic C4-C16 cycloalkane substrate and the reaction mixture is obtained by (i). This is not described in the originally filed application in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention and is therefore new matter. There is no mention anywhere in applicants' specification of only using the hydrocarbon or the chain ether as the solvent for the crystallization of the imide compound from a reaction mixture obtained by an oxidation reaction of only a monocyclic C4-C16cycloalkane substrate and there is no mention anywhere in applicants' specification of limiting the solvent to water when the reaction mixture is obtained by (ii)-(vi) or the substrate is other than a monocyclic C4-C16 cycloalkane substrate and the reaction mixture is obtained by (i). Applicant cannot exclude subject matter not specifically included. Applicant cannot specifically exclude the use of the hydrocarbon or the chain ether as solvents for processes other than the oxidation of a monocyclic C4-C16cycloalkane substrate as these processes, i.e. applicant cannot limit the solvent to water when the reaction mixture is obtained by (ii)-(vi) or the substrate is other than a monocyclic C4-C16 cycloalkane substrate and the reaction mixture is obtained by (i) without support for this limitation. There is no description in the prior art for only using water when the reaction mixture is obtained by (ii)-(vi) or the substrate is other than a monocyclic C4-C16 cycloalkane. Therefore the limitations in the claims are not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time of the application was filed, had possession of the claimed invention, i.e. the claimed process with the use of a

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hydrocarbon or a chain ether as a solvent only when the process is the oxidation reaction of a monocyclic C4-C16 cycloalkane substrate. Applicant cannot specifically exclude something not specifically described in the specification, i.e. applicant cannot exclude the use of the hydrocarbon or the chain ether as a solvent for other processes besides the oxidation reaction of a monocyclic C4-C16 cycloalkane substrate as these other processes are not described in the specification.

Applicant further argues that Foricher fails to teach or suggest the reaction of a substrate of the type required by claims 1-3 and 18. Specifically, applicant argues that the substrate of Foricher, the isoprenoids having an allylic hydrogen, have no meaningful relationship-in chemical structure or properties- to the substrates recited in claims 1-3 and 18. Applicants arguments are not found persuasive because an isoprenoid having an allylic hydrogen, is still found within applicants instantly claimed invention of claim 38. Specifically, wherein the substrate of claim 1 is a polycycloalkane. Page 34 of applicants' specification states that polycycloalkanes include bridged cyclic hydrocarbons which are defined on page 26 of applicants' specification to include for example, bicyclic hydrocarbons (e.g., pinane, **pinene**...) and **terpene**. Foricher, column 2, lines 66-68 state, "accordingly, isoprenoids include the compounds described in greater detail under specific entries, namely hereterpenes, terpenes, ...." Therefore the Foricher reference still anticipates applicants invention since it discloses the process of oxidizing an isoprenoid having at least one allylic hydrogen atom in the presence of a N-hydroxydicarboxylic acid imide of the formula (I)

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such as N-hydroxyphthalimide. Furthermore, the oxidation of a-pinene is found on columns 5 and 6 of the Foricher reference.

### ***Specification***

The amendment filed 7 April 2005 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the amendment to the paragraph bridging pages 48-49 of the specification. Specifically, the amendment to the paragraph bridging pages 48-49 changes the monocyclic C4-C16cycloalkane from an oxidation reaction product, in the preferred embodiment of using a hydrocarbon and a chain ether as solvent, to a substrate is considered new matter. While applicant states that it is apparent that the monocyclic-C4-C16 cycloalkane is a substrate rather than an oxidation product, it is noted that the original paragraph bridging pages 48-49 stated that the reaction product is a monocyclic C4-C16cycloalkane. It is not apparent to one of ordinary skill in the art that there is an error, and even if it was apparent that there is an error, it is not apparent what the appropriate correction would be to the example of a low or weak polar compound as a reaction product with preferred solvents as hydrocarbon and a chain ether. Therefore, the amendment to the specification filed 7 April 2005 is considered new matter and Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, claim 1 contains the proviso that "provided that when the hydrocarbon or the chain ether is employed as the solvent for crystallizing the imide compound from the reaction mixture, the reaction mixture is obtained by an oxidation reaction of a monocyclic C4-C16cycloalkane substrate." This proviso is not described in the originally filed application in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention and is therefore new matter. This phrase lacks description in the originally filed specification. There is not mention anywhere in applicants' specification of only using the hydrocarbon or the chain ether as the solvent for the crystallization of the imide compound from a reaction mixture obtained by an oxidation reaction of only a monocyclic C4-C16cycloalkane substrate. Applicant cannot specifically exclude the use of the hydrocarbon or the chain ether as solvents for processes other than the oxidation of a monocyclic C4-C16cycloalkane substrate as these processes are not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time of the application was filed, had possession of the claimed invention, i.e. the claimed

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process with the use of a hydrocarbon or a chain ether as a solvent only when the process is the oxidation reaction of a monocyclic C4-C16 cycloalkane substrate.

Applicant cannot specifically exclude something not specifically described in the specification, i.e. applicant cannot exclude the use of the hydrocarbon or the chain ether as a solvent for other processes besides the oxidation reaction of a monocyclic C4-C16 cycloalkane substrate as these other processes are not described in the specification.

Therefore, claims 1-3 and 18 are rejected as containing new matter and the new matter should be deleted from claim 1.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 38 is rejected under 35 U.S.C. 102(b) as being anticipated by Foricher et al., US Patent No. 5, 030, 739.

The instant claim 38 claims a process for separating a reaction product and an imide compound of the formula (1) from a reaction mixture obtained by a reaction of a substrate selected from the group consisting of cycloalkanes, polycycloalkanes, alicyclic and aromatic alcohols, and aromatic hydrocarbons containing a methyl group or a methylene group in the presence of the imide compound, which process comprises separating said reaction product and said imide compound from said reaction mixture by solvent-crystallizing the imide compound from said reaction mixture with at least one solvent selected from the group consisting of a hydrocarbon, a chain ether, and water, wherein the reaction mixture is obtained by (i) oxidizing the substrate with oxygen, (ii)-(v) or (vi).



This invention of claim 38 was described in the prior art US Patent No. 5, 030, 739 more than one year prior to the date of the instant application. US Patent No. 5, 030, 739 discloses the process of oxidizing an isoprenoid having at least one allylic hydrogen atom(column 1, lines 39-59), such as terpenes, sesquiterpenes and steroids (column 2, lines 43-57), such as  $\alpha$ -pinene (column 3, lines 28-36) in an inert ketone or ester in the presence of a N-hydroxydicarboxylic acid imide of the formula (I), such as N-Hydroxyphthalimide (NHPI) (Table 1, column 9, lines 42-59). The separation of the catalyst from the reaction mixture is disclosed on column 4, lines 50-62, wherein the catalyst can be separated (crystallized-out) from the reaction mixture with the aid of a non-polar solvent, such as hexane. An example of the oxidation of  $\alpha$ -pinene is found in example b), columns 5 and 6 the imide compound used was NHPI (see experiment (b) in Table 1). Another example of the oxidation of  $\alpha$ -pinene is found in example 4, columns 9-10, wherein  $\alpha$ -pinene is reacted with NHPI and the imide is separated out with hexane/diethyl ether, (i.e. the substrate  $\alpha$ -pinene, a bridged cyclic hydrocarbon which is included within polycycloalkanes, is soluble in the hexane/diethyl ether solution (as seen by the filtrate being evaporated to dryness and the resulting residue containing the final oxidation product), is oxidized with the aromatic oxidation catalyst NHPI and then the catalyst is separated out by a solvent crystallization step with the aid of a solvent mixture of hexane, an alicyclic hydrocarbon having 6 carbon atoms, and diethyl ether, a diC1-6alkyl ether). The prior art substrate is an isoprenoid having at least one allylic hydrogen atom, such as  $\alpha$ -pinene which corresponds to applicants claimed substrate of a polycycloalkane.

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Rebecca L. Anderson whose telephone number is (571) 272-0696. Mrs. Anderson can normally be reached Monday through Friday 5:30AM to 2:00PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Joseph K. McKane, can be reached at (571) 272-0699.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

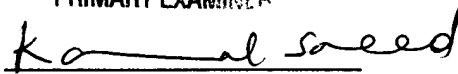

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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